REMARKS

Claims 14-43 remain in the application. Claims 18-20, 27-37, 39, and 41-43 stand allowed. Claims 14-17, 21-22, 24-26, 38 and 40 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Kudo et al. (U.S. Patent 5,657,186). Claim 23 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kudo in view of Arya et al. (U.S. Patent 6,055,132).

Initially, it may be instructive to review the claimed invention of the present application in view of the prior art disclosures. In general, the present application discloses and claims in certain embodiments an interconnect module for use in a suspension assembly. More specifically, the application discloses an interconnect module that includes a ceramic insulating substrate and two independent electrical contact regions, the two regions electrically connected by an appropriate number of conducting lines (page 30, lines 20-22).

The interconnect module may be employed to connect a set of integrated suspension leads (electrical leads that are integrated into a layer of suspension) to a slider/head assembly. The first set of contacts on the interconnect module may be used to connect to the integrated suspension leads. The second set of contacts on the interconnect module may be used to connect to the slider/head assembly. Both sets of contacts, or contact regions, are located on the interconnect module and are connected to each other via electrically conducting lines on the surface of or internal to the interconnect module (page 22, lines 1-9).

The slider/head assembly is in disclosed embodiments configured to be oriented for either

use in either an in-line (rotary actuator) or orthogonal (linear actuator) application, such as disk drive and disk test systems (page 17, lines 6-19).

The application also discloses a suspension that includes a load beam and a layered member. The layered member may contain multiple layers, including an electrical lead layer, an electrical insulating layer, and a support layer. The electrical lead and insulating layers may be photolithographically etched to form electrical leads (or lines). These electrical leads, as well as the other layers, extend from the rear termination pad area, or base end portion of the suspension, to the slider/head assembly region (Figure 5; also page 14, lines 20-24; also page 15, lines 6-11).

The prior art discloses an integrated lead suspension similar to the suspension described above that is disclosed in the present application. Specifically, Kudo describes a flexible wiring substrate 32 that is formed and mounted on the suspension 30 (Kudo column 4, lines 44-45). Electrical signal lead conductors 34a – 34d are formed within the substrate 32 and extend from a terminal 92 at the base end portion of the suspension 30, or rear termination pad area, to the signal electrodes 33a – 33d at the slider/head assembly region (Figure 9; also column 4, lines 49 - 62; also column 6, lines 34-36).

Clearly the combination of the flexible wiring substrate 32 and related electrical signal lead conductors 34a – 34d described in Kudo directly corresponds to the multi-layered member in the present application. More specifically, the flexible wiring substrate 32 corresponds to the support layer of the multi-layered member, and the electrical signal lead conductors 34a – 34d

Given that the multi-layered member is separate in form and function from the interconnect module claimed in the present application, the interconnect module is clearly distinct from the combination of the flexible wiring substrate 32 and related electrical signal lead conductors 34a – 34d.

With regard to claims 14, 21, and 24, Applicants' response, filed February 25, 2002, to the previous Office Action, dated October 2, 2002, included four arguments in support of the patentability of the invention claimed in the present application. As stated in Applicants' response, these arguments are as follows:

1. The flexible wiring substrate 32 of the prior art is part of the suspension 30 and is not a separate interconnect module as described in the present application.
2. The flexible wiring substrate 32 of the prior art does not couple the connecting ends 33a – 33d with the connecting ends of the slider/head.
3. The flexible wiring substrate 32 of the prior art does not route one or more data signals between the identified electrically conductive paths 79 and the slider/head assembly 76.
4. The connecting ends 78a – 78d and the connecting ends 33a – 33d are not positioned in first and second directions as described in the present application.

Additionally, it appears that the basis for rejection under 35 U.S.C. Section 102 has changed. That is, the previous office action stipulated that the equivalent of an interface module was the flexible wiring substrate 32, while the present office action cites the equivalent of an interface module as being lead wires 79. If this is the intended rejection, it is a new basis for rejection and a final rejection is premature under MPEP 706.07(a). Accordingly, if the examiner did, indeed intend this new grounds for rejection, the final status of the rejection should be withdrawn, as stipulated by 706.07(d).

Presuming that the examiner intended to make the same rejection as in the previous office action, applicants assert that the four arguments mentioned above are sufficient to point out the patentable distinction of the present claims over the cited reference Kudo, et al.

Argument 1. The flexible wiring substrate 32 of the prior art is part of the suspension 30 and is not a separate interconnect module as described in the present application.

The flexible wiring substrate 32 is part of the suspension 30 in the same manner that the multi-layered member is a part of the suspension in the present application. For purposes of the present application, the suspension and multi-layered member are considered together as part of the suspension (claims 14 and 24) and second device (claim 21), each having a connecting end and electrically conducting paths. Obviously the electrically conducting paths of the suspension may be embodied by the flexible wiring substrate 32 and electrical signal lead conductors 34a –

As mentioned previously, the claimed interconnect module is separate from the suspension, which, as disclosed, includes the multi-layered member. Thus, the flexible wiring substrate 32 cannot function as an interface module as claimed in the rejected claims.

Argument 2. The flexible wiring substrate 32 of the prior art does not couple the connecting ends 33a – 33d with the connecting ends of the slider/head.

The combination of the flexible wiring substrate 32 and corresponding electrical signal lead conductors 34a – 34d provide a signal path from a terminal 92 at the base end portion of the suspension 30 to the signal electrodes 33a – 33d. The combination, however, does not couple the connecting ends 33a – 33d with the connecting ends 78a – 78d of the slider/head assembly. The described coupling occurs by means of lead wires 79 (Kudo column 5, lines 56-58), which are separate from the substrate 32 and signal electrodes 33a – 33d.

An overview of the connection sequence described in Kudo shows that the 1) signal terminals of a magnetic disk drive unit are connected to 2) the signal lead conductors 34a – 34d at a terminal 92 at the base end portion of the suspension 30, which conductors 34a – 34d terminate at 3) the signal electrodes 33a – 33d. At this point, the flexible wiring substrate 32 and signal lead conductors 34a – 34d stop. The electrical connection is continued via the lead wires 79 to the signal terminals 78a – 78d of the slider 76.

Given the connection sequence presented in Kudo, the flexible wiring substrate 32 and the signal lead conductors 34a – 34d couple the terminal 92 to the signal electrodes 33a – 33d

rather than to the connecting ends of the slider. In fact, it is the lead wires 79 only that couple the signal electrodes 33a – 33d to the signal terminals 78a – 78d of the slider/head assembly.

Argument 3. The flexible wiring substrate 32 of the prior art does not route one or more data signals between the identified electrically conductive paths 79 and the slider/head assembly 76.

As described in conjunction with the second argument, the signal lead conductors 34a – 34d within the flexible wiring substrate 32 route one or more data signals between the terminal 92 at the base end portion of the suspension 30 and the signal electrodes 33a – 33d only. It is only the bonding of the lead wires 79 to the signal terminals 78a – 78d on the slider 76 that "routes" any signal between the lead wires 79 and the signal terminals 78a – 78d. The flexible wiring substrate 32 and signal lead conductors 34a – 34d are connected to the *opposite end* of the lead wires 79. It is impossible, therefore, for the prior art to anticipate the claimed interconnect module through the disclosure of bonding when the claimed interconnect module includes distinct limitations from those inherent in bonding.

Argument 4. The connecting ends 78a – 78d and the connecting ends 33a – 33d are not positioned in first and second directions as described in the present application.

The present application discloses an interconnect module that interconnects two devices. The positioning of the first and second sets of electrical contact regions on the interconnect module may depend on the orientation of the termination pads and/or wires in each of the two

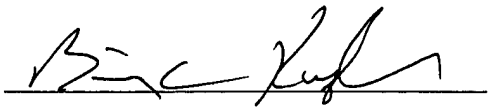
The present application illustrates one embodiment in which the electrical leads are positioned facing a first direction parallel to axis 501. The head termination pads, on the other hand, are positioned facing a second direction perpendicular to axis 501. The interconnect module routes the electrical signals between the electrical lead terminations and the head termination pads such that the suspension may be adapted for orthogonal mounting (Figure 7; also page 21, lines 12-17).

Ultimately, one of the primary advantages of the interconnect module as described in the present application is the configuration of the interconnect module that allows minimal adaptation of one suspension design for use in either an in-line mounting or orthogonal mounting as dictated by the system actuator. Additionally, other significant advantages are the abilities to provide multiple layers of interconnect modules to support complex wiring schemes and to interconnect various other devices other than suspensions and slider/head assemblies (page 6, lines 8-9; also page 23, lines 10-13).

As a result of the presented remarks, Applicants assert that independent claims 14, 21, and 24 are in condition for prompt allowance. Applicants have not specifically traversed the rejections of dependent claims 15-17, 22, 25-26, 38, and 40 under 35 U.S.C. 102(b) and dependent claim 23 under U.S.C. 103(a), which depend from those independent claims, but believe those claims to be allowable for depending from allowable claims. See, *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

of such need. If any impediments to the prompt allowance of the claims can be resolved by a telephone conversation, the Examiner is respectfully requested to contact the undersigned.

Respectfully submitted,



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